Dear members of the Zoning Board of Appeals,

I write to comment on the traffic peer reviewer's report on parking. I am a Town Meeting Member in Precinct 3 and a resident of the Coolidge Corner Southside Neighborhood. I am also a quantitative social scientist holding a PhD in Government from Harvard University and have worked as a data consultant in voting rights cases and for the Maryland Department of Health.

I have several concerns with the methodology employed by the peer reviewer to project a parking demand for the proposed 32 Marion Street development equal to 0.5 to 0.65 spaces per unit. The description provided by the peer-reviewer is not sufficiently detailed to replicate. Presumably, data from the American Community Survey on the average vehicle ownership for senior, renter households was used, but the description does not identify the precise fields, calculations made, and years of data. Furthermore, the American Community Survey has a large margin of error due to sampling uncertainty and nonresponse biases – particularly for smaller subsets of the population such as seniors who rent in a single Census Tract – and it is not clear whether or how the reviewer accounted for this uncertainty.

However, my more substantial concern is that the peer reviewer's analysis imposes a "one-size-fits-all" characterization of parking demand that fails to account for the particularities of the proposed building – a large multifamily building consisting of 100% low-income subsidized, 100% one-bedroom rental units. These concerns arise in large part from a careful review of a study of parking demand and utilization in the Boston region by the Metropolitan Area Research Council in which researchers visited and recorded overnight parking lot utilization at 189 multifamily buildings in greater Boston.[1] The MAPC researchers studied features of the built environment, community features, and transit accessibility that may influence parking utilization. Factors associated with "remarkably low parking demand" included proximity to a rapid transit site, a high rate of subsidized units, and age-restrictions (page 12). Of course, 32 Marion meets all these criteria: it is proximate to both bus and rapid transit, 100% of the units are subsidized, and the building is age-restricted. Hence, three major concerns with the Walker Study are as follows:

1. **The report does not account for the fact that the proposed project consists of 100% low-income units** (<60% Area Median Income, with an additional set-aside at <30% AMI). The MAPC report (page 18) notes, "As the share of affordable units increases, parking demand decreases."

2. **The report does not account for the bedroom mix of the proposed project.** Again, 100% of the units in the proposed project are 1-bedroom; the MAPC study found these smaller units tend to have reduced parking demand.

3. **The report does not account for the independent effect of parking availability on parking utilization.** The MAPC study finds that the availability of parking increases parking utilization, holding other features of the built environment and socioeconomic context constant in a statistical model. A recent study of an affordable housing lottery in San Francisco demonstrated that those who were randomly assigned to live in a building with off-street parking were twice as likely to own a vehicle years later than those who were assigned to a building without it.[2]

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[1] See more details, and the full MAPC report for download, here: perfectfitparking.mapc.org

[2] Millard-Ball, A., West, J., Rezaei, N. and Desai, G., 2021. What do residential lotteries show us about transportation choices? Urban Studies, p.0042098021995139. Available for download here

Table 1: Statistical Models of Parking Demand

Dependent Variable:	Vehicles per unit	
Walk Score	-0.01***	-0.001
	(0.001)	(0.001)
Prop. 1-Bedroom	-0.26***	-0.08*
	(0.06)	(0.04)
Prop. Affordable	-0.30***	-0.10***
	(0.05)	(0.04)
Transit Access	-0.12 ***	-0.06**
	(0.04)	(0.02)
Parking Supply		0.54***
		(0.04)
Observations	189	189
Adjusted R^2	0.37	0.73
Predicted Ratio, 32 Marion:	0.18	0.11

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The data collected by the MAPC on parking utilization and building features is publicly available. Using these data on parking space supply and demand and other building and community features from 189 multifamily properties in Metro Boston, I estimated two statistical regression models of parking demand as a function of building and neighborhood characteristics. In these models, the dependent variable is the number of vehicles parked overnight at the building per housing unit (hence, this analysis pertains solely to resident parking – not visitor parking). Explanatory variables in both models include whether the building is within half a mile of rapid transit (1 if yes, 0 if no), the Walk Score, the proportion of subsidized units (ranging from 0 to 1), and the proportion of 1-bedroom units; the second model adds the number of parking spaces per unit. The results of these models are shown below in Table 1.

The fitted model parameters can be used to project the expected overnight vehicle demand at 32 Marion Street (Figure 1). In Model 1, the predicted vehicle demand per unit is about 0.18; in Model 2, which explicitly models parking availability, the projected demand is about 0.11.[3] Hence, the proposed parking ratio of 0.20 for Phase I and 0.16 following Phase II is reasonable relative to the projected demand for this 100% affordable, % 1-bedroom, age-restricted property near rapid transit in a location with a Walkability Score of 95.

Sincerely,

Michael Zoorob, PhD

45 Longwood Avenue

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[3]The 95% confidence intervals for these predictions are 0.07-0.30 (Model 1) and 0.03-0.18 (Model 2)